

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Scheduled Inspection

N669320015

FACILITY: WOODWORTH INC		SRN / ID: N6693
LOCATION: 20251 SHERWOOD AVENUE, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT: Andrew Rickman , Quality Manager-Metallurgist		ACTIVITY DATE: 11/28/2012
STAFF: Terseer Hemben	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: Syn Minor Opt Out
SUBJECT: MACT/NESHAP: Degreaser operations		
RESOLVED COMPLAINTS:		

INSPECTED BY : Terseer Hemben, MDEQ  
 PERSONNEL PRESENT : Lonny Rickman, Andrew Rickman  
 CONTACT PHONE NUMBER : (313)-891-1440  
 FACILITY FAX : (313) 891-2630  
 DATES OF INSPECTION : 11/28/2012  
 SRN: N6693

**FACILITY BACKGROUND: The Woodworth Group.**

I arrived at the Woodworth facility at 1045 hours. The purpose of my visit was to conduct an annual inspection for compliance requirements. Temperature at the hour was 36 F with wind speed 10 mph coming from the W. Woodworth is located at 20251 Sherwood Avenue, Detroit. The facility's business entails operations such as metal finishing and cleaning. Heat treatment of metals is performed in 23 heat treat furnaces. Eight (8) of the furnaces are operated at atmospheric conditions. Atmospheric conditions support 'nitriding', whereby metals are heated to temperatures ranging 925-1050 F and held for 5 to 40 hours while gaseous Nitrogen is introduced into the surface of ferrous solid alloy in presence of Ammonia gas. No quenching is involved in the process, but a Methane (CH4) atmosphere is needed to control the process of metal hardening. Gases that are not absorbed during the process are burned off at the stack. Woodworth has a stack that services Degreaser1. The stack has no control device for reducing VOC emissions to the ambient air.

Three (3) of the furnaces are vacuum type that perform various annealing or softening and hardening of steels in an atmosphere devoid of Oxygen. The vacuum furnaces operate in temperatures ranging from 960-2050 F. Ferrous metals are introduced into the furnaces and processed. Nitrogen is used for cooling the process, while the jacket of the furnace is cooled with a closed loop system of tempered water. No hazardous air pollutants are emitted from the process.

Three (3) of the furnaces are used for steam oxide treatment of metals. Steam oxide treatment is performed on ferrous metals to produce a surface and internal oxide that decreases the base material porosity, increases material compressive strength, wear, and corrosion. Operating temperatures range from 700 - 1000 F. Two (2) of the furnaces are used for tempering whereby previously hardened steel is heated to a temperature below the lower critical temperature and cooled at a suitable rate in order to increase ductility, toughness, and the grain size of the matrix. One (1) furnace is currently decommissioned from usage.

Woodworth facility was permitted to install an Open Top Batch Vapor Degreaser in 2003, and the equipment has been in operation since then. Woodworth uses 7 to 26 furnaces when necessary. However, the Company stated that only Seventeen (17) furnaces are currently in frequent use.

Woodworth used to coat metal parts in a spray booth. The booth used paint arrestors as particulate control devices. The Spray booth operation has been uninstalled and completely removed from the facility. The facility currently favors the use of Polymer dip unit to coat metal parts. The facility was permitted to pre-clean metal parts with both alkaline (soap) treatment, and use of trichloroethylene batch vapor degreaser. However, Woodworth made a modification to the metal pre-cleaning process. The use of Trichloroethylene batch vapor degreaser was eliminated and replaced with use of N-propyl-Bromide since May, 2011. The MDEQ had, and still

has no official knowledge of the change. The company failed to apply for PTI for the modification. N-Propyl bromide is not listed by EPA as HAP, but the chemical constitute a VOC source of emissions. The permitting unit is yet to make determinations on the permitting of the process.

Woodworth installed a new Spray Wash system that utilizes aqueous surfactant solution for metal cleaning. The Spray booth equipment holds 14000 lbs of wash liquid per batch. Spent liquid is pumped into an Oil and Water Separator for solvent recovery. Spent wash solvent is sent to a newly installed pressure filter, where metal particles are reclaimed and sold to customers.

Nitrogen and ammonia are stored in cylindrical tanks on the site. Ammonia is used for the heat treating process. Nitrogen is used to control temperature in the heat treating equipment chamber.

I held a pre-inspection conference with Mr. Andrew Rickman, Mr. Lonny Rickman, and Mr. Vince Monde. Mr. Andrew Rickman, Vince Monde, and Lonny Rickman conducted me around the facility for inspection. We held a post-inspection conference with all the parties listed. I shared my observations with the Woodworth managers. I requested relevant records from Woodworth Inc. and asked them to be forwarded to AQD office, Detroit, within seven (7) working calendar days. The records were forwarded timely via email with an appended note from Mr. Lonny Rickman requesting me to explain why Woodworth should be submitting MAERS after the company changed the pre-cleaning process from use of Trichloroethylene degreaser to N-propyl bromide. I explained to the Woodworth management team the Company needed to make an official attempt for validate the change through PTI application. Such a move would enable the AQD Permitting Unit to modify the permit that reflects NBP instead of TCE.

#### COMPLAINT/COMPLIANCE HISTORY:

Woodworth facility has not been a source of citizen air quality complaints. However, EPA has been interested in the facility's Degreaser operations and emissions compliance.

#### OUTSTANDING CONSENT ORDERS:

None

#### OUTSTANDING LOV'S:

None

#### OPERATING SCHEDULE/PRODUCTION RATE:

Woodworth facility is designed to operate 24 hours per day, and 7 days per week. Currently, the facility operates 24 hours, five days per week.

#### PROCESS DESCRIPTION:

Metal parts are received as pre-cleaned and degreased and heated before coating is done. Cleaning is performed using either an aqueous Spray Wash (PH 7-9) for water based soluble contaminants, or open top batch vapor degreaser for organic contaminants. Practically, parts arrive from machine shops coated with grease and wrapped for processing. The greased parts are directly put into the Degreaser. Polymer dip tank is used as needed. Batch vapor degreaser is in use daily as metal parts cleaner. The standard of operation manual for the degreaser is on file. There are two storage vessels located outside the building: one horizontal 8,000 gallon tank for ammonia in the southwest side of facility, and one vertical nitrogen tank located in the northwest side of the facility.

#### EQUIPMENT AND PROCESS CONTROLS:

Woodworth utilizes model BACT -120A Vapor Degreaser manufactured by Vapor Engineering, Inc. for metal cleaning. The equipment has a standard Freeboard Ratio of 1.0, which is controlled by Freeboard refrigeration device – the Temp Rite chiller. Efficient operation of the equipment is aided by the provision of reduced room draft and dwell.

Polymer dip tank using "Ultramate" 2835 rust inhibitor is utilized for slowing down oxidation reaction with the treated metals. A tank of anhydrous ammonia supplies Ammonia for heat treat processes. A tank of Nitrogen supplies compressed nitrogen for heat treatment process.

The heat treating furnaces temper, harden and nitride metals as desired. Four of these furnaces are gas fired and the others are electric furnaces. Sand blasting of parts is carried out in two stations. None of the sand blasting equipment is vented to ambient air.

#### APPLICABLE RULES/PERMIT # 34-03 SPECIAL CONDITIONS:

Woodworth is permitted to operate an open top batch vapor degreaser with projection that the facility would use an externally and vertically vented emissions controlled by an appropriately designed particulate and VOC capturing device. However, the company uses a ventilation system to manage its emissions. Based on the permit conditions and guidelines of State Rules, NESHAP and MACT guidelines, Staff observed:

1. Not in compliance - Woodworth informed there has been modification to the degreaser system in May 2011. Woodworth decommissioned TCE process and replaced with N-Propyl Bromide. The AQD determines the said equipment may be exempt from rule 201 (1) requirement on the merit of Exempt rule 285 (c)(iii). N-Propyl Bromide is not listed as HAP. However, rule 278(a) requires documentation of material use and calculations identifying the quality, nature, and quantity of the air contaminant emissions to be maintained in sufficient detail to demonstrate that the emissions meet the emissions limit outlined in the rule. Woodworth did not provide the essential information demonstrating the level of material use and calculations identifying the quality, nature, and quantity of the air quality contaminant (N-Propyl bromide) complying with the rules to AQD. A Violation Note was sent to the facility for compliance pursuit.
2. Undetermined - Woodworth demonstrated emissions of NPB in the Degreaser1 did not exceed 8.7 tpy based on 12-monthly rolling time period determined at the end of each calendar month [SC 1.1a]. However, the limits were set for use of TCE.
3. Undetermined - Woodworth demonstrated the emissions of NPB in Degreaser1 did exceed 1445lb/month based on 3-monthly rolling time period as determined at the end of each calendar month [SC 1.1b]. However, the limits were set for use of TCE.
4. Undetermined - Woodworth demonstrated the amount of NPB used per year, based on a 12-monthly rolling period as determined at the end of each calendar month did exceed 1420 gallons (net usage amounted to 1828 gallons) [SC 1.2]. However, the limits were set for use of TCE.
5. Undetermined - Woodworth did not demonstrate that on the first operating day of every month solvent emissions are determined including all solvent additions and deletions for the previous monthly reporting period [SC 1.5b]. However, the conditions were set for use of TCE.
6. Undetermined - Woodworth did not demonstrate that on the first day of each month the system is checked to contain only clean solvent [SC 1.5a] However, the conditions were established for use of TCE.
7. Not in compliance - Woodworth did not demonstrate that total amount of halogenated HAP solvent removed in solid waste is determined on the first operating day of every month [SC 1.5c]. However, the limits were set for use of TCE. Importantly, Woodworth provided inadequate response to this question. See response item 7-18 attached (pg. 2).
8. In compliance - Woodworth demonstrated that on the first operating day of every month, the monthly rolling average for the 3 month period ending with the most recent reporting is determined [SC 1.5d] However, the conditions were set for use of TCE. Importantly,

- Woodworth provided inadequate response to this question. See response item 7-18 attached (pg. 2).
9. In compliance - Woodworth demonstrated the monthly and 12-monthly rolling time period of records depicting amount of solvent used each month and 12-monthly rolling time period are kept [SC 1.6]. However, the conditions were set for use of TCE. Importantly, Woodworth provided inadequate response to this question. See response item 7-18 attached (pg. 2).
  10. In compliance - Woodworth demonstrated monthly and 3-monthly rolling and 12 monthly rolling time period records of calculations depicting NPB emissions for Degreaser1 are made and kept on file [SC 1.7]. However, the conditions were set for use of TCE. Importantly, Woodworth provided inadequate response to this question. See response item 7-18 attached (pg. 2).
  11. In compliance - Woodworth demonstrated the amounts and dates of solvent that are added to and removed from Degreaser1 are recorded and kept on file [SC 1.8a]. However, the conditions were set for use of TCE. Importantly, Woodworth provided inadequate response to this question. See response item 7-18 attached (pg. 2).
  12. In compliance – Woodworth demonstrated the solvent composition of wastes removed from Degreaser1 are recorded consistent with 40 CFR 63.465(c)(2) [1.8b]. However, the conditions were set for use of TCE. Importantly, Woodworth provided inadequate response to this question. See response item 7-18 attached (pg. 2).
  13. In compliance – Woodworth demonstrated calculations indicating how monthly emissions and the rolling 3-monthly rolling period emissions from Degreaser1 were determined, including results [1.8c]. However, the conditions were set for use of TCE. Importantly, Woodworth provided inadequate response to this question. See response item 7-18 attached (pg. 2).
  14. In compliance - Woodworth demonstrated the emissions of individual HAPs at the facility did not exceed 9.0 tpy based on 12 monthly rolling time period as determined at the end of each calendar month [2.1a]. However, the limits were set for use of TCE. Importantly, Woodworth provided inadequate response to this question. See response item 7-18 attached (pg. 2).
  15. In compliance – Woodworth demonstrated the combined HAP at the facility did not exceed 22.5 tpy based on 12-monthly rolling time period as determined at the end of each calendar month [2.1b]. However, the limits were set for use of TCE. Importantly, Woodworth provided inadequate response to this question. See response item 7-18 attached (pg. 2).
  16. In compliance - I inspected the facility for visible emissions consistent with Rule 336.1301, and odor causes consistent with R 336.1901. Staff observed there was no visible emission coming out through the stack, and there was no unusual odor outside the facility.
  17. Noted - Woodworth informed that the facility does not use control devices, such as Absorber or Carbon adsorption, as required in R 336.1708 to control NPB emissions. Factually, there is no control device limiting the emissions of solvents through the Degreaser stack. Staff recommended the Company to conduct a stack test to determine the stack emissions of trichloroethylene in 2010 when the limits were set for use of TCE. Importantly, Woodworth provided inadequate response to this question. See response item 7-18 attached (pg. 2).
  18. Unacceptable- A standard Operation Procedure (SOP) for handling Degreaser was not provided consistent with R 336. 1708 for handling NPB. However, the limits condition was set for use of TCE. Importantly, Woodworth provided inadequate response to this question. See response item 7-18 attached (pg. 2).
  19. Acceptable - Woodworth did not have to provide established Dwell times for the parts used in Degreaser1. However, the conditions were set for use of TCE. Importantly, Woodworth provided inadequate response to this question. See response item 7-18 attached (pg. 2).



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December 5, 2012

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RE: Permit # 134-03 SRN M6693

Mr. Hemben:

We are writing this in response to your visit and ensuing conversation with us on Wednesday, November 28, 2012.

Answers to your questions are as follows:

**Question #1:** Demonstrate modifications to system or process at the facility w/n past two years.

RESPONSE: In July of 2010, a decision was made to transition from Trichloroethylene to N-Propyl Bromide. James Ostrowski at MDEQ was contacted regarding this change. As evidenced by Mr. Ostrowski's response, nothing definitive was communicated in transitioning from TCE to NBP. Contracted BT Environmental for further clarification.

Following is the e-mail response from Mr. Ostrowski:

**Title 1A Response:**

**From:** Ostrowski, James (DEQ) [<mailto:OSTROWSKI12@michigan.gov>]

**Sent:** Monday, March 12, 2012 1:11 PM

**To:** Rickman, Andrew

**Subject:** Degreaser and MAERS reporting

Andrew,

*Per our discussion earlier today, your facility is subject to MAERS reporting because you are subject to the 40 CFR 63, Subpart T, which applies to facilities that use a halogenated solve (e.g., TCE) in their degreaser. You are also subject to MAERS because your air permit has a facility wide limit that keeps you out of being a major source (see page 8 of your permit <http://www.deq.state.mi.us/aps/downloads/permits/finpticon/2003/34-03.pdf>).*

*You stated that you no longer use TCE at your facility. Check out this applicability determination that the EPA put out for a facility in a similar position to you <http://cfpub.epa.gov/adi/pdf/adi-mact-m050029.pdf>.*

*Essentially, you can get out of being subject to the Halogenated Solvent Degreaser MACT if you certify in writing that your facility no longer uses a halogenated solvent and will never use a*

*halogenated solvent. While this will no longer make you subject to the federal standard you will still be subject to MAERS reporting as long as your existing permit contains the facility-wide limit on your hazardous air pollutant (HAP) emissions (page 8). The permit is set up to regulated your TCE emission so you may consider requesting to void the permit because the unit no longer uses TCE and the new solvent is not a HAP so a source wide HAP limit is no longer required. The unit could be exempt from permitting under one of the following air permit exemptions.*

*Rule 281(h) exempts cold cleaners with air vapor interface less than 10 ft2*

*Rule 285(r)(iv) exempts cleaning of metal parts if emission emitted to general in-plant environment*

*Rule 290 exempts sources with limited emissions*

*These exemptions can be viewed in full in Part 2 of the Michigan Air Pollution Control Rules [http://www.michigan.gov/documents/deq/deq-aqd-air-rules-apc-PART2\\_314760\\_7.pdf](http://www.michigan.gov/documents/deq/deq-aqd-air-rules-apc-PART2_314760_7.pdf).*

*If the degreaser does not fall under any of these exemption you may need to re-permit the degreaser based on the new solvent or modify the existing permit. Regardless of whether your unit is exempt or not it will still be subject to the degreaser provisions in Part 6 and 7 of the air pollution Control rules (R 336.610 - R 336.614 for existing cold cleaners and degreasers and R 336.1707 – R 336.1710 for “new” cold cleaners and degreasers) Part 6 and 7 Rules can be accessed at [http://www.michigan.gov/deq/0,4561,7-135-3310\\_4108-97106--,00.html](http://www.michigan.gov/deq/0,4561,7-135-3310_4108-97106--,00.html).*

*If you are no longer subject to Subpart T AND your permit no longer has that source wide emission limit (no HAP limit) then you can request to no longer be subject to MAERS reporting. This is something you will want to discuss with your district office.*

*I know this may be a bit confusing. Feel free to give me a call if you are unclear on any of this.*

*- Jim*

**RESPONSE:** In an effort of cooperation, MDEQ was contacted regarding system modification. Admittedly response was confusing and ambiguous so decision to continue reporting MAERS as outlined and submission was made.

Questions 2 – 4 summary of last 12 months data compilation has been attached in an Excel spreadsheet and is entitled “Woodworth Incorporated, followed by our Permit #”.

Questions 5 – 6 Pertaining to 40 CFR 63.464(a)(1) & 40 CFR 63 Subpart A & T

**Halogenated solvent** is an organic solvent, molecules of which contain halogenic atoms: chlorine (Cl), fluorine (F), bromine (Br) or iodine (I).

7 – 18	Questions 7 – 18 are difficult to demonstrate. The 1 <sup>st</sup> of each month does not always coincide with dates or operation. In 2012, Jan., April, July, Sept. and Dec. were weekends. Many of the questions seem redundant and should be exhibited in monthly maintenance and usage data, outlined in questions 2 thru 4.	
19	Number of employees	26
20	Hours of operation	Typically 24 hours, 5 days/week
21	What are the hours operation hours of paint booth	We do not have a paint booth





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N Propyl Bromide Vapor Degrease 2012 MAERS Reporting Page 1

Month	Starting Amount #	Additions #	Total #	Gross Waste #	Recovery %	Reclaim Yield #	Emissions #	#3	#4
December	1,450	870	2,320	1,000	95	950	1,370		208.9
January	1,450	580	2,030	117	3	3.5	2,026.5		208.9
February	870	580	1,450	121	3	3.6	1,446.4	1,614	208.9
March	N/A	870	870	111	3	3.3	866.7		0
April	870	870	1,740	133	2	2.7	1,737.3		208.9
May	1,160	580	1,740	119	2	2.4	1,737.6	1,447	208.9
June	1,160	580	1,740	118	2	2.4	1,737.6		208.9
July	870	870	1,740	124	2	2.5	1,737.5		0
August	870	870	1,740	128	1	1.3	1,738.7	1,738	156.7
September	580	870	1,450	114	1	1.1	1,448.9		208.9
October	580	1,160	1,740	135	1	1.4	1,738.6		208.9
November	580	1,160	1,740	130	1	1.3	1,738.7	1,642	0
<b>Total</b>	10,440	9,860	20,300	2,350	116	975.5	<b>19,324.5</b>		1828

Month	Purchased NPB	Pounds NPB
December	4	2320
January	4	2320
February	4	2320
March	0	0
April	4	2320
May	4	2320
June	4	2320
July	0	0
August	3	1740
September	4	2320
October	4	2320
November	0	0
<b>Total</b>	35	20300

3 Month Rolling Average	
Dec - Feb	1614.3
Jan - Mar	1446.5
Feb - Apr	1350.1
Mar - May	1447.2
Apr - Jun	1737.5
May - Jul	1737.6
Jun - Aug	1737.9
Jul - Sep	1641.7
Aug - Oct	1642.1
Sep - Nov	1642.1

Purchase NPB for past 12 months  
 1 drum                      580 lbs.  
 Density                      1.35 gm/cm<sup>3</sup>  
 1 drum                      52.22 gallons